عنوان مقاله:

A Multi-Objective Scatter Search Algorithm for Solving a Bi-Objective Location-Routing Problem

محل انتشار:

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خلاصه مقاله:

The location of manufacturing facilities is one of the most important strategic decisions considered in the design of logistic systems. The other important strategic decision is the structure and management of the fleets. Most often, even if two kinds of problems, namely location of facilities and vehicle routing, appear together in a given scenario, they have been studied and solved separately. This paper presents a new integrated mathematical model for a bi-objective multi-depot location-routing problem where the total demand served is to be maximized and the total cost, consisting of start-up of the facility, fixed and variable depot and variable delivery cost, is to be minimized and. Since this type of the problem is NP-hardness, a new multi-objective scatter search (MOSS) algorithm is proposed for searching locally Pareto-optimal frontier for the given problem. To validate the performance of the proposed MOSS algorithm in terms of the solution quality and diversity level, various test problems are carried out and the efficiency of this algorithm based on some comparison metrics is compared with elite tabu search (ETS). The computational results show that the proposed MOSS outperforms the ETS, especially for the large-sized problems.

کلمات کلیدی:

Multi-objective multi-depot location-routing problem; Multi-objective scatter search; Elitetabu search

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